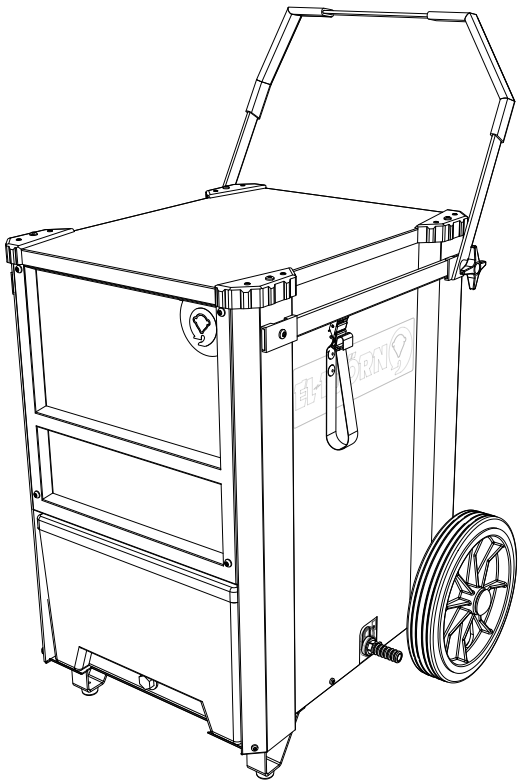
User manual

Building dehumidifier

A 65D,A 65DE



*We now give a 5-year warranty on the purchase of new products by allowing users to register and enter their product details on our website.

EL-BJÖRN

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INTRODUCTION

These instructions describe in detail how to use, maintain and look after the dehumidifier.
They also describe the steps you should take to maximise safety, and the design and operation of the safety features.

NOTE!
The section concerning safety must be read and understood by anyone who uses or repairs the dehumidifier.

The instructions include operation and maintenance measures that can be performed by the operator. More detailed service or troubleshooting must be carried out by the manufacturer's service staff. The user instructions describe all the necessary safety features.

The first thing the user should do following delivery, is to read the instruction manual carefully. This should be done before connecting to the electricity supply.

The symbols and warning signs shown on the following page appear in these instructions and on the dehumidifier. If any of the warning signs on the dehumidifier are damaged in any way, new signs must be ordered as quickly as possible to ensure maximum safety when using the dehumidifier.

The dehumidifier may only be used for the purposes described in these instructions.

The manufacturer reserves the right to make any changes.

TECHNICAL DATA

Dehumidifier technical data

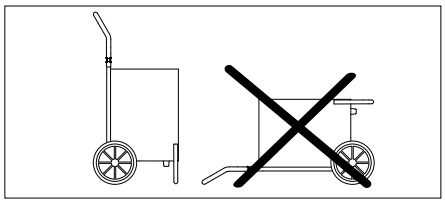
Width:	566 mm
Height:	935 mm
Length:	576 mm
With handle folded	
Height:	668 mm
Length:	502 mm
Weight:	41 kg
Electrical connection:	1N~230V
Fuse:	10 A, slow

Rated power:	2055W
Auxiliary heating:	1330W
Operating range, temp:	+5°C-30°C
Operating range, RH:	30-99%
Air flow, unrestricted:	450 m3/h
Refrigerant, type:	R134a
Refrigerant, quantity:	520 g

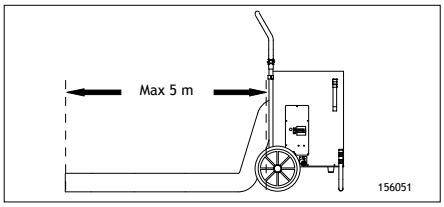
Type plate

Explanation of symbols on the dehumidi-

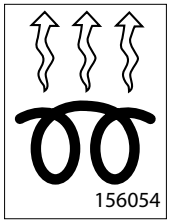
CE The manufacturer guarantees that this product fulfils safety requirements in accordance with the low-voltage directive.



The dehumidifier must be transported standing up. The dehumidifier must always be positioned standing upright when in use.

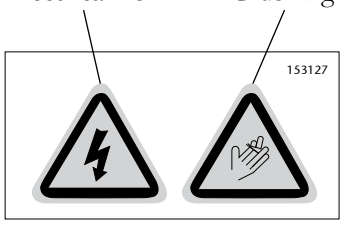


Maximum hose length 5 metres.

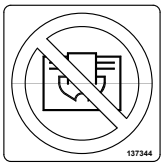


Auxiliary heating

Electrical risk Crushing risk



Warning and connecting signs



WARNING!
The dehumidifier's air inlet and outlet must never be covered during operation.

SAFETY REGULATIONS

Warnings and notes

These instructions contain the following text boxes where applicable.

WARNING!
These text boxes warn of injury/damage to people or property. The warning boxes appear before the procedure in question.

NOTE!
These text boxes give special instructions and recommendations to simplify certain procedures.

Warning signs in these instructions

Read these instructions carefully and make sure you understand them before using the dehumidifier.

Warning! The dehumidifier can be dangerous!
Careless or incorrect use can result in serious, or even fatal injuries.

The manufacturer guarantees that this product fulfils safety requirements in accordance with the low-voltage directive.

Safety during installation

Electrical connections to power outlets and any additional equipment, e.g. timers, must be carried out by a qualified electrician.

Safety during maintenance

Before performing any maintenance work on the dehumidifier, the machine must be disconnected from the electrical supply. This is done by unplugging the connector from the power outlet.

All maintenance of the electrical system must be performed by qualified electricians.

All maintenance of the cooling system must be performed by qualified cooling technicians.

Always wear protective gloves when cleaning the evaporator and condenser, to avoid cuts.

Safety during use

The dehumidifier is intended for indoor use.
The closest distance to adjacent walls, roofs and combustible material, etc. is 0.5 metres.

The dehumidifier's air inlet and outlet must never be covered during operation. Never remove protective hoods and cover plates during operation.

The product is not intended for use by persons (including children) with impaired judgement, reduced physical or mental capacity, or lack of experience and knowledge, unless they have been shown how to use of the product or instructed in its use by a person who is responsible for their safety.

The product is however suitable for use in situations where there are persons (including children) with reduced physical or mental capacity or impaired judgement.

If children are present near the product, they must be informed that the product must not be used as a toy or a plaything.

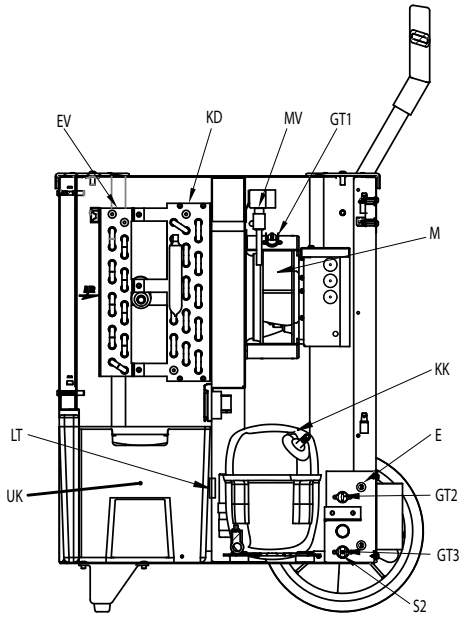


Figure 2

Cutaway side view of building dehumidifier.

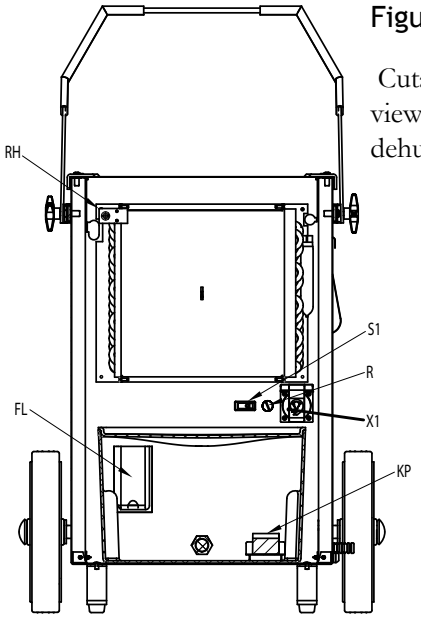


Figure 3

Cutaway front view of building dehumidifier.

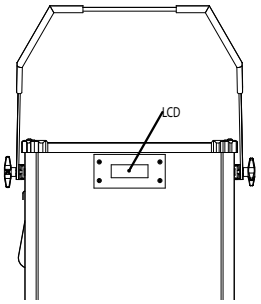
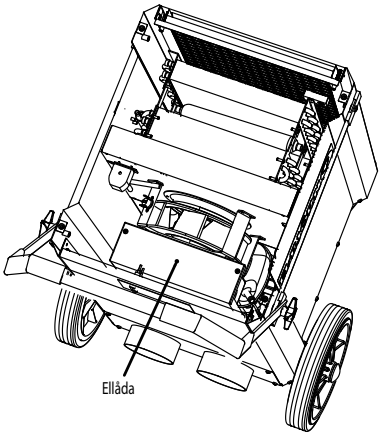


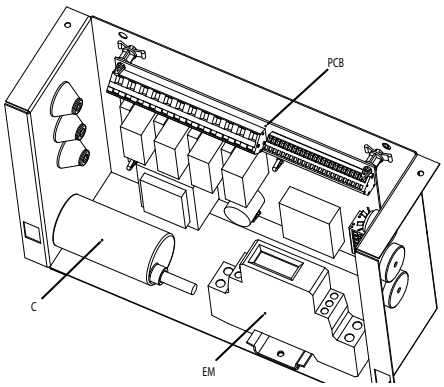
Figure 5

Display, LCD

Figure 6

Location of the electrical box (left) and components in the electrical box (right)





Component description

S1	Rocker switch, heating
LT	Level sensor/magnetic switch
MV	Solenoid valve
E	Heating element 1330W
GT1	Thermostat
GT2	Thermal cut-out
GT3	Thermal cut-out
KK	Cooling compressor
M	Radial fan
X1	Outlet for pump
C	Capacitor
KP	Condensation pump
KD	Condenser
EV	Evaporator
PCB	Circuit board
UK	Collection tank
S2	Reset button
LCD	Display
FL	Float
R	Fuse holder
RH	Humidity sensor
EM	Energy meter
FLS	Float channel

Piping schematic for A 65

Components

Code	Description
CT	Refrigerant container
EV	Evaporator
DF	Dryer filter
KK1	Cooling compressor
CP	Condenser
SD	Capillary tube
MS -1	Closed valve with meter port (Schrader valve)
MS -2	Closed valve with meter port (Schrader valve)
M1	Circulation fan

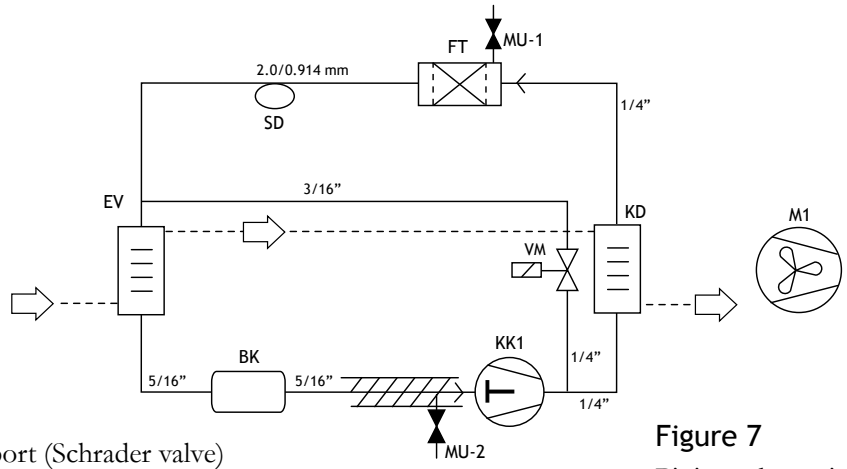


Figure 7
Piping schematic

3 Operation

3.1 Electrical system

Power is supplied to the unit by connecting the plug to the power outlet.

1. The collection tank, UK, must be in place in order to activate the magnetic switch, LT. The machine can then be switched on.

2. Start sequence: The display is activated, the fan, M, starts, and the solenoid valve, MV, opens.

3. After a few seconds the solenoid valve, MV, closes, and the compressor, KK, starts up. The display shows the temperature and air humidity. The humidifier is now in normal operating mode.

4. The heating element, E, is switched on and off using the toggle switch, S.

5. The thermostat, GT1, automatically controls the current supplied to the heating element, E.

6. The thermal cut-out, GT2, shuts off the control current to the heating element, E, automatically in the event of overheating. It is reset automatically when the temperature drops.

7. The thermal cut-out, GT3, shuts off the control current to the heating element E in the event of overheating. When the temperature drops it can be reset manually by pressing the reset button, S2, (see figure 8).

8. When the temperature of the evaporator drops, there is a risk of ice formation. The dehumidifier monitors the temperature of the evaporator and starts defrosting if needed by opening the solenoid valve MV for several minutes.

9. When the collection tank is full it deactivates the magnetic switch, LT, and the dehumidifier shuts down. The dehumidifier starts up again when the tank is emptied and replaced.

10. The condensation pump, KP, (option) is connected to the outlet from the pump, X1. When the water level in the collection tank, UK, reaches the condensation pump it starts automatically. Level regulation is built into the pump and takes place automatically.

3.2 Fan, M

The fan motor has no separate thermal overload relay, but is equipped with a thermo switch (GT2). The thermo switch sits inside the motor windings and cuts the current if the temperature gets too high. It is reset automatically when the temperature drops.

3.3 Compressor, KK

The compressor has a thermal overload relay built into the windings of the motor that stops the compressor if the temperature rises too high. This overload relay resets automatically when the temperature returns to normal.

3.4 Thermostat, GT1

The thermostat, GT1, controls the heating element, E, and cuts the control current to the element at 50°C. Control is automatic.

3.5 Overheating protector, GT2

The thermal cut-out, GT2, cuts the control current to the heating element, E, in the event of overheating, i.e. at 70°C. The cut-out is reset automatically when the temperature drops.

3.6 Thermal cut-out, GT3

The thermal cut-out, GT3, cuts the control current to the heating element, E, in the event of overheating, i.e. at 90°C. When the temperature drops, the cut-out can be reset manually by pressing the reset button, S2, see figure 8.

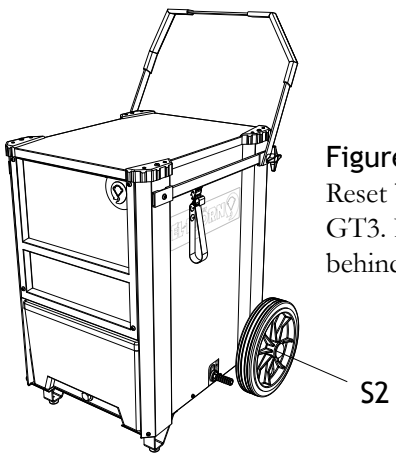


Figure 8
Reset button for GT3. Positioned behind wheel.

3.7 Heating element, E

The heating element, E, is switched on and off using the rocker switch, S, which glows green when the element is on. The rocker switch is positioned behind the collection tank. Temperature regulation and protection is described in sections 3.4–3.6 above.

3.8 Condensation pump, KP (option)

The condensation pump, KP, is connected to outlet, X1. Level regulation is built into the pump and takes place automatically. See section on "Installation/ Options" for a description of installation and fuse provision for the pump.

3.9 Self-test

The display unit makes it easy to check the operation of the dehumidifier and allows faster servicing. The display unit uses a self-test program that guides you through all the necessary steps of servicing. See section on "Maintenance/Service" for a description of its use.

3.10 Energy meter, EM (option)

The energy meter, EM, can be installed and used when the dehumidifier is fitted with an LCD display. The A 65DE model of the dehumidifier, item number E8745069, is equipped with an energy meter, EM. The meter measures the energy consumption of the dehumidifier, which is shown on the display. This can be zeroed from the display unit. This is useful when there is a need for electricity billing. See the section on "Installing accessories" for a description of installation. The energy meter in the electrical box shows the dehumidifier's total electricity consumption, see EM fig. 6.

3.11 Display, LCD

The A 65 building dehumidifier is equipped with an LCD display. The display provides information on the operating status of the dehumidifier.
The relative air humidity is measured and shown as 3 different levels:
High (100%RH - 60%RH), Medium (60%RH - 30%RH) and Low (30%RH - 0%RH).

INSTALLATION

NOTE
The dehumidifier must be transported standing up.

NOTE
The dehumidifier must always be positioned standing upright when in use.

WARNING!
The dehumidifier's air inlet and outlet must never be covered during operation. Protective hoods and cover plates must never be removed during operation.

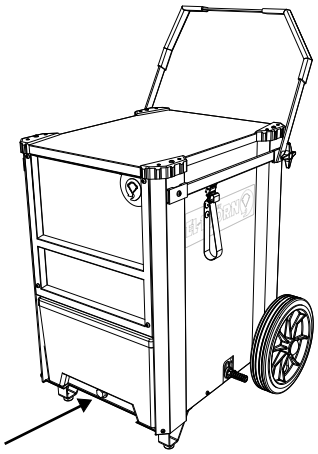


Figure 9
Hose connection at front of collection tank

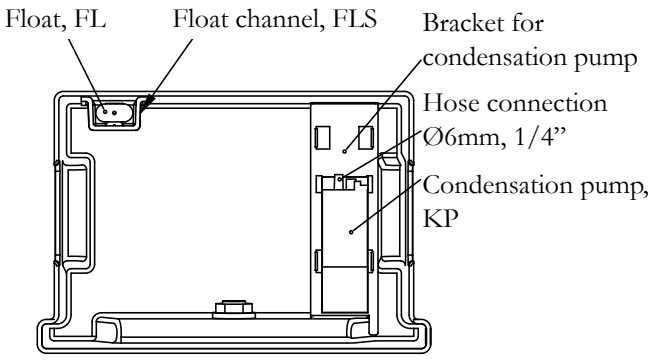


Figure 10
Collection tank seen from above

Collection tank

When the collection tank is full the dehumidifier stops automatically. Alternatively the water can be drained off by connecting a hose to the dehumidifier's collection tank, UK, see section on "Water drainage".
If the dehumidifier is supplied with a condensation pump this is installed in the collection tank.

Water drainage

The collection tank, UK, has a drain outlet for condensate located at the front of the tank, see arrow in figure 9.
Make sure the condensate can run freely though the hose by avoiding kinks in the hose.
Do not crush the hose or place anything on top of it.
Connect the hose by removing the plug from the front of the tank and fitting a ½" hose coupling, such as Ballofix or the like.
The hose must run downhill to the floor drain. If the drain hose is very long, increase the size of hose one step. If the dehumidifier is equipped with a condensation pump, connect the drain hose directly to the condensation pump.

Condensation pump Eckerle E400

Connect a Ø 8mm drain hose directly to the outlet on the condensation pump, KP, see figure 10.
Make sure the condensate can run freely though the hose by avoiding kinks in the hose.
The hose can run up to a maximum of 4 metres above the floor level of the dehumidifier.
Do not crush the hose or place anything on top of it.
The pump must be fused with a slow glass fuse rated at max. 5A, 230V.
The glass fuses are located in the fuse holder, R, located behind the collection tank, UK, see figures 2 and 3.
Connect the pump to outlet X1.
The drain hose from the pump must be led out through the cut-out in the panel at the bottom right of the front of the collection tank. The cut-out is covered with a sealing label when the unit is delivered.
Level regulation is built into the pump and switches the pump on and off automatically.

Connecting outlet air hoses

With auxiliary heating

Connect the air hoses by sliding them over the outlet duct couplings and securing with hose clamps, for example. The maximum length per hose is around 5 metres.

Make sure the outlet air from the dehumidifier can flow freely through the hose by avoiding kinks and sharp bends. Do not crush the hose or place anything on top of it. The longer the hose, the lower the air flow. For efficient dehumidifcation you should therefore avoid using a longer hose than necessary. In other words, keep the hose between the dehumidifier and the object you intend to dry as short as possible.

If you intend to dehumidify a closed space, such as a wall cavity, floor void, underneath a work surface, etc., there must be sufficient clearance for the air to move freely.
The space to be dehumidified must also have an outlet to allow the air to escape. This space and the outlet must have a continuous cross-sectional area that is at least as large as the total cross-sectional area of the ducts, i.e. ≥0.016 m².

For example, if the space has a continuous cross-sectional area of around 0.016 m², the length of the space to be dehumidifiedin the flow direction, L2, must be included when calculating the total hose length L1 = Ltot - L2 – in this case a maximum hose length of around 5 m means a maximum total length of Ltot = L1 + L2 = 5m, see figure 11.

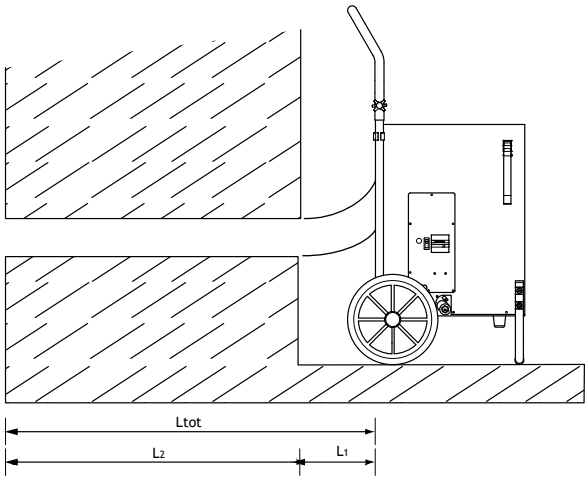


Figure 11

Without auxiliary heating

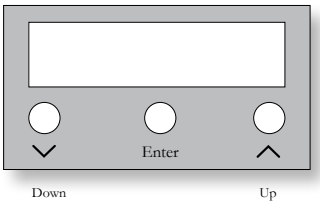
Without auxiliary heating it is possible to use a longer hose and/or dehumidify smaller spaces, but the capacity of the dehumidifier will be affected.

Electrical connection

The unit is powered on and off by connecting to an earthed power outlet.

Connect the drying room dehumidifier's plug to a 1 N-230V+PE socket. Fuse with at least a 10A slow fuse. Ltot L2 L1

FLOWCHART



Carry out steps 5.1-5.3 (maintenance/service) before running a self-test.
Run the dehumidifier for 6-10 minutes before running a self-test.

El-Björn V1.60 dehumidifier

Start-up 00:12:00

Dehumidifies: +22°C
Humidity: Low

Check the temperature with an external thermometer to get the correct ambient temperature.

Energy
.... kWh

Run time h

Only shows the energy used since start (only applies to units with energy meter.

Language Swedish

To change language, press enter and select with arrow buttons. Press enter for desired language.

Reset energy

To reset the energy meter (only applies to units with energy meter). Press enter and select Yes or No. Press enter.

Self-test
Start? Yes/No

If OK, press arrow down to continue

Cover in place?
Yes/No?

No

Self-test failed

Yes

Evaporator ok?
Yes/No?

Self-test failed

Condenser ok?
Yes/No?

No

Self-test failed

Filter ok?
Yes/No?

Self-test failed

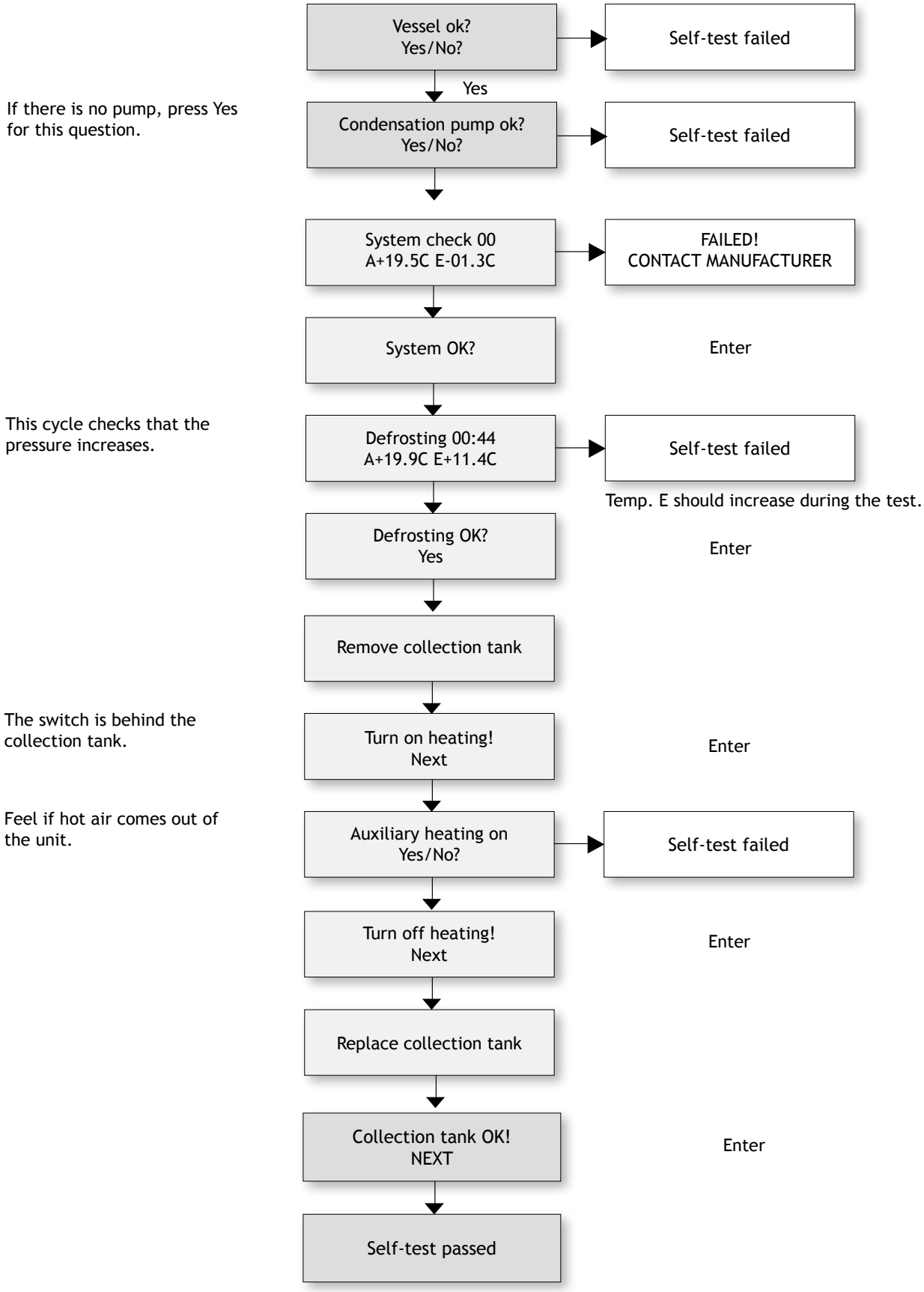
Fan ok?
Yes/No?

Self-test failed

Float ok?
Yes/No?

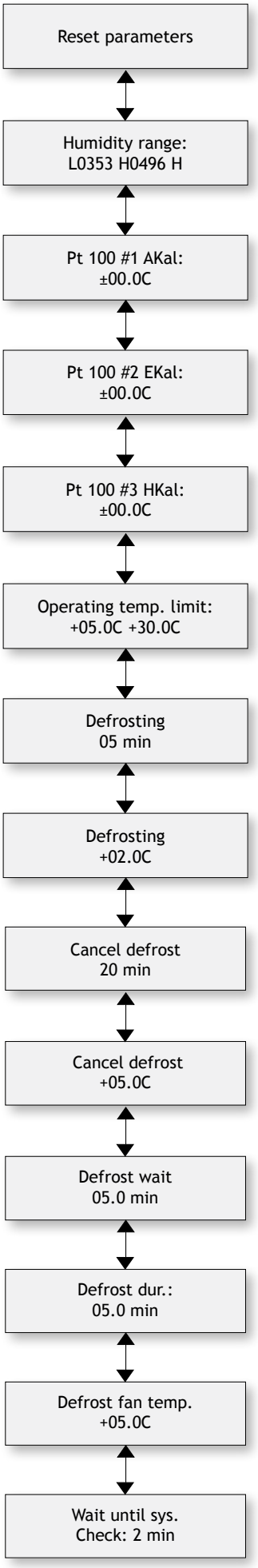
Self-test failed

FLÖDESSCHEMA



The dehumidifier should restart in normal mode after the self-test.
Factory settings must only be changed by El-Björn or by a certified service partner.

RESET PARAMETERS



(2.6) Ambient temperature

(2.6) Temperature in evaporator

(2.6) Hot gas temperature

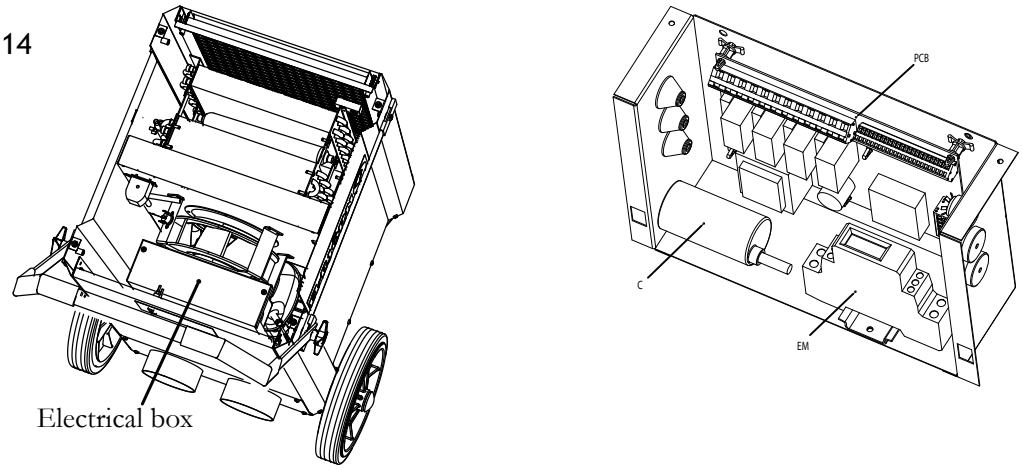
4 Installing accessories

All accessories must be installed by an authorised installer to avoid invalidating the guarantee. Before installing accessories, the dehumidifier must be disconnected from the electrical supply. This is done by unplugging it from the power outlet.

4.1 Energy meter, EM

The energy meter must be installed by a qualified electrician. The energy meter is used in combination with the display. The meter is mounted in the bottom of the electrical box using the DIN rail provided, see figure 14.

Figure 14



4.2 Condensation pump, KP

The condensation pump, KP, is mounted on the bracket using a strap. The bracket and pump are placed in the bottom right of the collection tank, UK, see figure 15. Lower the bracket in the horizontal position so that the upturned sheet metal edges locate in the walls of the tank. It may be necessary to adjust the sheet metal edges slightly. Connect the condensation pump, KP, to outlet X1, see figure 15. Refer to the "Installation" section for details of pump fuse rating.

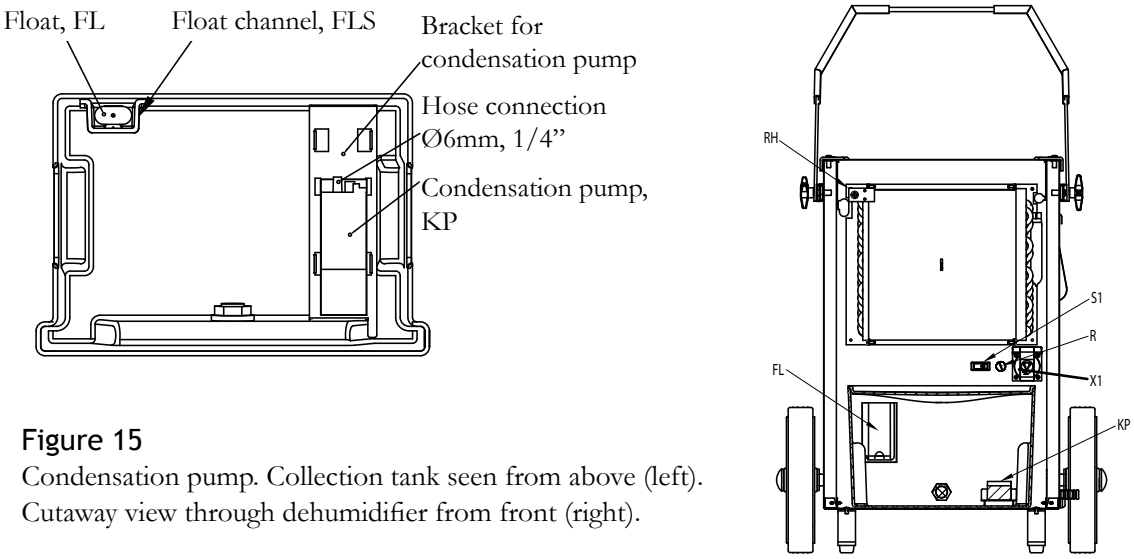


Figure 15
Condensation pump. Collection tank seen from above (left). Cutaway view through dehumidifier from front (right).

WARNING!
Before carrying out any maintenance work on the drying room dehumidifier, disconnect the unit from the electrical supply.
This is done by unplugging the dehumidifier from the power outlet.
All maintenance on the electrical system must be carried out by a qualified electrician.
All maintenance on the cooling system must be carried out by a qualified cooling technician.

WARNING!
Always wear protective gloves when working on the evaporator and condenser. There is a risk of cuts from sharp edges.

5 Maintenance/Service

Service and maintenance may only be performed by authorised personnel. All maintenance on the electrical system must be carried out by a qualified electrician. All maintenance on the cooling system must be carried out by a qualified cooling technician. Before installing accessories, disconnect the unit from the electrical supply. This is done by unplugging the dehumidifier from the power outlet.

5.1 Maintenance

Check the following points when necessary or at least annually (check the need for cleaning at least twice annually):

- Cleaning of evaporator, condenser fan and air outlet
- Cleaning of collection vessel, float, float guide and condensation pump.
- Replace filter
- Check cooling system
- Check electrical system
- Functional check of float, condensation pump, display and auxiliary heating.

5.2 Replacing the filter

To be performed as required or at least once annually. Replace more often in dusty environments. To replace, pull out the dirty filter from the front or by removing the cover and lifting out the filter.

5.3 Cleaning

Carefully blow dirt off the condenser and evaporator with compressed air. In dusty environments this should be done regularly. Clean the float, float channel, collection tank and condensation pump (option) with water.

5.4 Repair

In case of extensive repairs, please contact your distributor. During the warranty period, always contact the distributor before performing a repair.

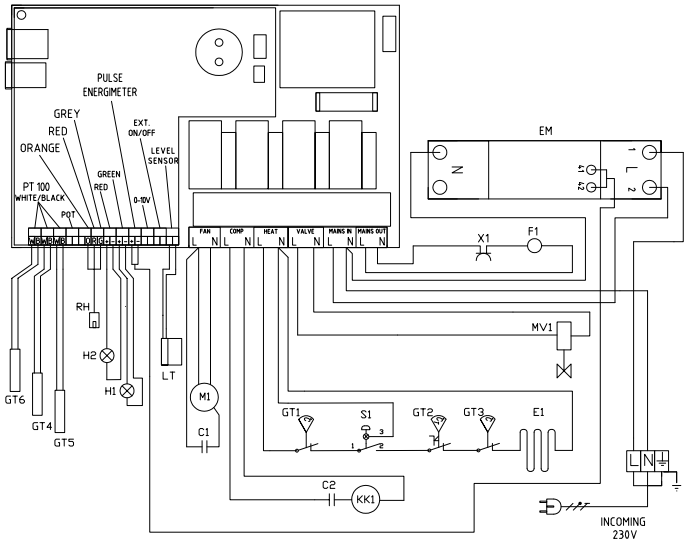
5.5 Underhåll med hjälp av självtest

The display unit makes it easier to check the performance of the dehumidifier and permits faster servicing. The display unit uses a program that guides you through the necessary servicing steps using a self-test sequence. See the instructions for the display unit for a detailed description.
(see page. 10–12)
Run the dehumidifier for 6–10 minutes before running a self-test.

5.6 Power cable

The power cable must be replaced by a qualified electrician.

WIRING DIAGRAM / 135175K1



Wiring Diagram A 65DE / 153175K1	
Components	
S1	Heater wall switch
MV1	Soleniod valve
E1	Heating element 1330W
RH	RH-sensor
GT1	Thermostat
GT2	Themal Cut-out, manual
GT3	Themal Cut-out, automatic
GT4	PT100 Evaporator Temp.
GT5	PT100 Ambient Temp.
GT6	PT100 Hot gas temp.
LT	Level Sensor
KK1	Compressor
M1	Fan
C1	Capacitor 2uF
C2	Capacitor 80uF
X1	Output for pump
F1	Glass Fuse
EM	Energymeter Em10-DIN

SPARE PARTS

When ordering spare parts, always state:

- Model
- Serial number

The model number is given in the top row of the dehumidifier's rating plate. The serial number is given underneath the barcode on the dehumidifier's rating plate.

Pos gives the position of the spare part in the figures.

Quantity is the number of pieces of the spare part that are used in the dehumidifier.

Pos	Description	Qty	Item number
-	Wiring diagram	1	153175K1
-	Instruction manual	1	153171
EV,KD	Evaporator, condenser	1	153113
E	Heating element, 1330 W, resistiv. Backer, item no. 6450258701	1	KL305042
S	Rocker switch, heater	1	114223
	Rubber cover with frame	1	114219
DF	Drier filter, cooling circuit, 15 g	1	KL401203
CT	Refrigerant tank, Accumulator 25cm	1	KL401000
GT1	Thermostat, automatic, 50°C	1	114423
GT2	Thermal cut-out, automatic, 70°C	1	KL304235
GT3	Thermal cut-out, manual, 90°C	1	KL304236
	Reset button		3253692
MV1	Solenoid valve, defrosting	1	KL403200
X1	Outlet for condensation pump	1	35018
-	Cable connector	1	22328
-	Cable strain relief incl. kink protector	1	114108
M	Radial fan	1	KL300253
C	Capacitor, fan, 2uF	1	KL300254
CC	Compressor	1	153150
SD	Capillary tube, TC42, 1 m	1	KL405005
-	Star knob for frame hoop	2	502592
-	Lifting handle	2	153545
-	Handle	1	153549
-	Foot plate	2	153217
-	Plug for foot plate	2	153309
-	Rubber wheel	2	KL504017
-	Collection tank	1	153105
-	Cable strap	1	147200
-	Bracket for condensation pump	1	153227
-	Outlet duct coupling assy. Ø102	1	153209
GT4, GT5	Temperature sensor PT100	2	153109
GT6 PT100	Hot gas temp.	1	153109
-	Circuit board	1	153101
RH	RH sensor	1	153110
-	Level regulation for tank	1	153106
-	Label for service box	1	153127
-	Filter	1	153117

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